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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,381	02/05/2004	Shuichi Kohayashi	118575	3326
25944	7590	10/09/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER PATEL, ISHWARBHAI B	
			ART UNIT 2841	PAPER NUMBER
			MAIL DATE 10/09/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/771,381

Applicant(s)

KOHAYASHI ET AL.

Examiner

Ishwar (I. B.) Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on March 8, 2007 and July 12, 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-12 is/are pending in the application.
- 4a) Of the above claim(s) 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 7-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 8, 2007 (and subsequent response to notice of Non-Responsive amendment filed on July 12, 2007) has been entered.

Oath/Declaration

2. The declaration was objected in the previous action. The substitute declaration is still awaited.

Claim Objections

3. Claims 7-12 are objected to because of the following informalities:

Regarding claim 7, "said rod-shaped oxide superconductor" lacks proper antecedent basis.

Claims 8-12 depend upon claim 7 and inherit the same deficiency.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakazu Osamu, (Japanese Patent No. JP0909763A) in view of Kimura (US Patent No. 5,786,304) and Maeda (US Patent No. 6,235,685).

Regarding claim 1, Kakazu in the figure 1, discloses an oxide superconductor current lead in which metallic electrodes (2a, 2b) are provided at both sides of the oxide superconductor (1), joining metal (solder 4) is provided at joint portions formed by said superconductor and said metallic electrodes, and said oxide superconductor and said metallic electrodes are joined by the joining metal (4).

Kakazu does not explicitly disclose the oxide superconductor is a rare-earth based oxide superconductor manufactured by a melting method and a volume of holes in the joining metal provided at the joint portions is 5% or less of a volumetric capacity of the joint portions.

However, rare earth based superconductor and solder containing silver used for joining the superconductor is old and known in the art. Maeda, in figure 1-3, discloses joining of a current lead made of rare earth oxide superconductor with a normal

conductor made of silver with low resistance. Kimura discloses various embodiments of joining rare earth based superconductor with solder comprising silver.

Therefore, it would have been obvious to a person of ordinary skill in the art to have the superconductor of Kakazu, made of rare earth based material, as taught by Maeda and Kimura, as is old and known in the art. Further, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

Regarding the volume of holes in the joining metal provided at the joint portions is 5% or less of a volumetric capacity of the joint portions. Kakazu further recites that the joint formed is with a low contact resistance. The holes formed by the entrapped gas at the joint will increase the resistance. Therefore, low contact resistance of Kakazu implies that there will be minimum amount of entrapment of the gas or no gas holes formed at all.

Further, the hole (void) at the joint will reduce the mechanical strength at the joint and may lead to develop a crack with variation in temperature.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to construe the structure of Kakazu with a volume of holes in the joining metal at the joint portions 5% or less of a volumetric capacity of the joint portions, in order to have a good joint and low contact resistance and to have better mechanical strength.

Regarding the limitation "the oxide superconductor manufactured by a melting method", it is a process step in the product claim. Such a process limitation defines the claimed invention over the prior art to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is same as, or obvious over the prior art. See Product-by-Process in MPEP § 2113 and 2173.05(p) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964, 966 (Fed. Cir. 1985). Therefore, Kakazu meets the limitation. Therefore, the modified assembly of Kakazu meets the claimed limitations.

Regarding claim 2, the modified assembly of Kakazu further discloses silver coat (3) provided on a surface of said oxide superconductor joined by the joining metal.

Regarding claim 3, the modified assembly of Kakazu further discloses the joining metal is solder including Pb-Sn.

Allowable Subject Matter

6. Claims 7-12 would be allowable if rewritten or amended to overcome the objection, set forth in this Office action.

7. The following is a statement of reasons for the indication of allowable subject matter:

An oxide superconductor current lead with the limitation "said metallic electrodes and the mating conductors are disposed so as to be overlapped on each other, and a surface area of this overlapped part is larger than a sum of sectional areas of the metallic electrodes and sectional areas of the mating conductors," in combination with other claimed limitation of the base claim 7 has not been disclosed or fairly suggested by the prior art of record taken alone or in combination.

Response to Arguments

8. Applicant's arguments (regarding claims 1-3) filed on March 8, 2007 have been fully considered but they are not persuasive.

Applicant starting on page 5 of the response argues that the resistance value varies depending on a measuring method and therefore if the present invention and prior art of JP'637 are compared, such a measuring method of resistance value needs to be studied and further states how the resistance values of the both the arts different. Also, applicant further argues that the prior art of JP'637 does not focus its attention on forming the holes of the joint portions and does not perform processing of setting the holes as 5% or less of the volume of the joint portions as recited in claim 1.

This is not found to be persuasive.

This a structural claim. Though, the prior art of JP'637 does not explicitly disclose the void (hole) at the joining material at the joint portion, as applied to claim 1 above, the void (hole) at the joint portion not only increase the electrical resistance at the joint, it will product a mechanically weak joint leading to a development of crack at the joint

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portion further weakening the joint. A person of ordinary skill in the art would be motivated to provide a joint without void to avoid such problems. As prior art of JP'637 (modified) discloses the structure. It meets the limitation.

Further, the applicant argues that the secondary art of Maeda and Kimura do not fill the deficiency of the primary art of JP637. However, the secondary art of Maeda and Kimura are used to show the use and joining of rare earth base superconductor. The combination discloses the structure as claimed. Furthermore, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (571) 272 1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 27, 2007



Ishwar (I. B.) Patel
Primary Examiner
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